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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/961,254

09/25/2001

Koichi Otsuki

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.

1940 DUKE STREET

ALEXANDRIA, VA 22314

EXAMINER

MILIA, MARK R

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/961,254

Applicant(s)

OTSUKI, KOICHI

Examiner

Mark R. Milia

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/15/06 has been entered. Currently, claims 1-28 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 8, 9, 15, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5586496 to Shinohara et al. in view of U.S. Patent No. 5852452 to Imai.

Regarding claims 1 and 15, Shinohara discloses a printing device and method for printing an image on a printing medium, comprising a feed mechanism configured to

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advance and stop the printing medium intermittently, wherein the feed mechanism is adjusted so that an average feed error δ_{ave} is in the vicinity of zero with respect to a printing medium among plural types of printing media designed to be used in the printing device (see column 1 lines 15-21, column 2 lines 54-61, and column 3 lines 15-20).

Shinohara does not disclose expressly adjusting the average feed error according to how slippery a print medium is.

Imai discloses adjusting the average feed error according to how slippery a print medium is (see column 8 line 47-column 9 line 5).

Regarding claims 8 and 22, Shinohara discloses a printing device for printing an image on a printing medium, comprising: a feed mechanism configured to advance and stop the printing medium intermittently (see column 1 lines 15-21), and a controller configured to supply a feed command to the feed mechanism to control the advance of the printing medium by the feed mechanism, wherein the controller is configured to correct a feed amount such that an average feed error δ_{ave} is in the vicinity of zero with respect to a printing medium among plural types of printing media designed to be used in the printing device, and to supply the feed command representing the corrected feed amount to the feed mechanism (see column 2 lines 54-61, column 3 lines 15-20, and column 4 line 49-column 5 line 45).

Shinohara does not disclose expressly adjusting the average feed error according to a specific print medium.

Imai discloses adjusting the average feed error according to a specific print medium (see column 8 line 47-column 9 line 5).

Shinohara & Imai are combinable because they are from the same field of endeavor, adjusting a printer feed mechanism to minimized feed error.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the aspect of Imai that adjusts for feed error due to how slippery a print medium is with the system of Shinohara.

The suggestion/motivation for doing so would have been to maintain clear, high quality images by adjusting the paper feed mechanism according to the type of recording medium (see column 2 lines 51-56 of Imai). It is well known in the art that slippery and non-slippery paper respond differently to paper feed mechanisms and therefore need to be adjusted for.

Therefore, it would have been obvious to combine Imai with Shinohara to obtain the invention as specified in claims 1, 8, 15, and 22.

Regarding claims 9 and 23, Imai further discloses wherein the specific printing medium includes a most slippery printing medium among the plural types of printing media (see column 8 line 47-column 9 line 5).

4. Claims 2-7, 9-14, 16-21, and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara and Imai as applied to claims 1, 8, 15, and 22 above, and further in view of Japanese Patent Document No. 10-337863 to Sumiya et al.

Reference will be made to the computer translation, which accompanies the Office Action.

Shinohara and Imai do not disclose expressly a print head configured to discharge ink to form dots on the printing medium, wherein the print head has N nozzles arranged in a feed direction of the printing medium by a pitch $k \cdot D$ for discharging ink of same color, where k is an integer of 1 or greater, D is a smallest dot pitch in the feed direction, and N is an integer of 2 or greater, and wherein the average feed error δ_{ave} regarding the most slippery printing medium is an average error when the feeding has been performed by a feed amount of $N \times (k \cdot D)$ or smaller.

Sumiya discloses a print head configured to discharge ink to form dots on the printing medium, wherein the print head has N nozzles arranged in a feed direction of the printing medium by a pitch $k \cdot D$ for discharging ink of same color, where k is an integer of 1 or greater, D is a smallest dot pitch in the feed direction, and N is an integer of 2 or greater, and wherein the average feed error δ_{ave} regarding the most slippery printing medium is an average error when the feeding has been performed by a feed amount of $N \times (k \cdot D)$ or smaller (see Drawing 42 and paragraphs 3-7).

Shinohara, Imai, & Sumiya are combinable because they are from the same field of endeavor, regulating feed amount to record high quality images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the printing of dots according to the feeding amount, as described by Sumiya, with the system of Shinohara and Imai.

The suggestion/motivation for doing so would have been to maintain clear, high quality images by adjusting the paper feed mechanism according to the type of recording medium.

Therefore, it would have been obvious to combine Sumiya with Shinohara and Imai to obtain the invention as specified in claims 2, 12, 16, and 26.

Regarding claims 3, 13, 17, and 27, Shinohara further discloses wherein the average feed error δ_{ave} regarding the most slippery printing medium is within a range of about -0.5D to about +0.5D (see Figs. 6 and 7 and column 4 lines 32-65).

Regarding claims 4 and 18, Shinohara further discloses wherein the average feed error δ_{ave} is within a range of about -0.5D to about +0.5D with respect to all of the plural types of the printing media designed to be used in the printing device (see Figs. 6 and 7 and column 4 lines 32-65).

Regarding claims 5, 14, 19, and 28, Sumiya further discloses wherein the integer k is 2 or greater, and wherein a value of $(k-1) \cdot \delta_{ave}$ obtained by multiplying the average feed error δ_{ave} regarding the most slippery printing medium by $(k-1)$ is within a range of about -0.5D to about +0.5D (see paragraphs 3-7).

Regarding claims 6 and 20, Shinohara further discloses wherein the average feed error δ_{ave} is of positive value with respect to printing medium other than the most slippery printing medium among the plural types of printing media designed to be used in the printing device (see Figs. 6-8, column 4 lines 32-65, and column 5 lines 43-46).

Regarding claims 7 and 21, Shinohara further discloses wherein the average feed error δ_{ave} regarding the most slippery printing media is of negative value (see Figs. 6-8, column 4 lines 32-65, and column 5 lines 43-46).

Regarding claims 10 and 24, Shinohara further discloses wherein the specific printing medium includes roll paper (see Fig. 1, roll paper/continuous feed paper has been used in the art for many years).

Regarding claims 11 and 25, Sumiya further discloses wherein the controller is configured to determine the correct feed value based on feed amount data and feed correction data included in printing data supplied from another device external to the printing device (see Drawing 1).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. To further show the state of the art refer to the attached Notice of References Cited.

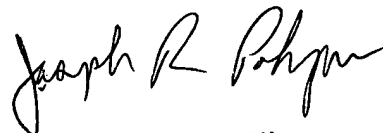
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark R. Milia whose telephone number is (571) 272-7408. The examiner can normally be reached M-F 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler M. Lamb can be reached at (571) 272-7406. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark R. Milia
Examiner
Art Unit 2625

MRM



JOSEPH R. POKRZYWA
PRIMARY EXAMINER